

***In* CONTROL**

The Dental Infection Control/Safety Supplement to Dental Items of Significance
NUMBER 20

January 2003

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Effective 1 September 2002, I took over as Director of Professional Services and Consultant in Dental Infection Control replacing Colonel Joseph Bartoloni. The transition has been relatively smooth due to his organizational abilities and my experiences during my Dental Infection Control and Occupational Safety and Health fellowship at the Centers for Disease Control and Prevention, Division of Oral Health.

I look forward to the challenges of working at DIS and those in the ever-changing field of infection control and safety. During my tenure in this position, I will do my best to keep you informed of new developments. If you have any ideas or would like to contribute to this publication, please do not hesitate to contact me.

As always, I am available to answer your individual calls, e-mails, or letters. My contact information is:

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DENTAL INFECTION CONTROL AND OCCUPATIONAL HEALTH COURSE

In 2001 the United States Air Force developed a partnership with the Organization for Safety and Asepsis Procedures (OSAP) to conduct the Dental Infection Control and Occupational Health/Safety Course. The first co-sponsored course was held at the National Naval Dental Center in Bethesda, MD. Over 100 students attended from the Air Force, Navy, Army, Public Health Service, Veterans Administration, and civilian institutions and practices. The program was a resounding success. The next course will be held 27 to 31 January 2003 in Atlanta, GA and the course will be open to military and civilians who have an interest in dental infection control and occupational health and safety. Please contact OSAP for course registration information: (800) 298-OSAP, (410) 571-0003 FAX, or www.osap.org.

2003 ORGANIZATION FOR SAFETY AND ASEPSIS PROCEDURES (OSAP) ANNUAL SYMPOSIUM

The 2003 Organization for Safety and Asepsis Procedures (OSAP) Annual Symposium will be conducted from 19 to 22 May in Tucson, AZ. The meeting will feature the latest information on dental infection control and office safety issues. This annual symposium offers a unique opportunity to exchange ideas with experts in the field of dental infection control and occupational health, and provides a wealth of information on new developments. Please contact OSAP for information on the upcoming symposium: (800) 298-OSAP, (410) 571-0003 FAX, or www.osap.org.

INFECTION CONTROL ITEMS FROM DIS NEWSLETTERS

The Dental Items of Significance Newsletter is published three times a year (January, May, September) and contains information on infection control. There may be items of interest that are not in the Infection Control Product Evaluation Section, such as a new item in "What's New" or an answer to an infection control question in "Q & A." I suggest that infection control officers review the newsletter very carefully and make copies of items for their infection control notebook. This can be done by accessing the DIS Web site: (www.brooks.af.mil/dis). Occasionally, infection control items from DIS Newsletters will be reprinted in *InControl*.

USE OF AF FORM 570 (NOTIFICATION OF PATIENT'S MEDICAL STATUS) DISCONTINUED

The Air Force Medical Operations Agency (AFMOA) issued a policy letter on 4 October 2002 discontinuing the requirement for Public Health (PH) to notify the dental clinic of patients diagnosed with an infectious disease. Previously, PH forwarded an AF Form 570, Notification of Patients Medical Status, to the dental clinic. The AF Form 570 was placed inside the patient's dental record until the patient was no longer considered infectious. This form was a communication tool between PH and the dental clinic.

All dental health-care personnel must continue to use Standard (Universal) Precautions and promptly report any occupational exposure to blood and/or body fluids to their designated dental clinic point of contact. All patients must continue to complete a comprehensive medical history (AF Form 696). This is reviewed upon initial and return dental visits. If dental health-care personnel providing care feel the need for additional information on the patient's health status, they can obtain the patient's medical record and/or consult with the patient's physician.

INFECTION CONTROL AND OCCUPATIONAL SAFETY AND HEALTH WEB SITE UPDATES

The Centers for Disease Control and Prevention's (CDC) Division of Oral Health updated its Web site (www.cdc.gov/OralHealth) and it now includes an expanded dental infection control section with frequently asked questions and fact sheets. The site also has relevant information on adult and children's oral health and water fluoridation.

The National Institute for Occupational Safety and Health (NIOSH) recently added a section on Bloodborne Infectious Diseases (www.cdc.gov/niosh/topics/bbp/) to their Web site. Excellent information is provided on safer medical devices, as well as links to other CDC Web sites.

The Occupational Safety and Health Administration (OSHA) recently added a section to their Web site (www.osha.gov/SLTC/dentistry/index.html) on safety and health topics relevant to dentistry.

The Organization for Safety and Asepsis Procedures (OSAP) has updated their frequently asked questions site, which can be found at www.osap.org.

For additional online infection control resources see Attachment 1.

CDC RELEASES NEW HAND HYGIENE GUIDELINES

In October 2002, the Centers for Disease Control and Prevention (CDC) released new guidelines for hand hygiene in health-care settings. The Guideline for Hand Hygiene in Health-Care Settings provides health-care workers (HCWs) with a review of data regarding handwashing and hand antisepsis in health-care settings. In addition, it provides specific recommendations to promote improved hand-hygiene practices and reduce transmission of pathogenic microorganisms to patients and personnel in health-care settings. This report reviews studies published since the 1985 CDC guideline (Gamer JS, Favero MS. CDC guideline for handwashing and hospital environmental control, 1985. *Infect Control* 1986;7:231-43) and the 1995 APIC guideline (Larson EL, APIC Guidelines Committee. APIC guideline for handwashing and hand antisepsis in health care settings. *Am J Infect Control* 1995;23:251-69) were issued and provides an in-depth review of hand-hygiene practices of HCWs, levels of adherence of personnel to recommended handwashing practices, and factors adversely affecting adherence.

New studies of the *in vivo* efficacy of alcohol-based hand rubs and the low incidence of dermatitis associated with their use are also reviewed. Recent studies demonstrating the value of multidisciplinary hand-hygiene promotion programs and the potential role of alcohol-based hand rubs in improving hand-hygiene practices are summarized. Recommendations concerning related issues (e.g., the use of surgical hand antiseptics, hand lotions or creams, and wearing of artificial fingernails) are also included.

The guidelines were developed by the CDC's Healthcare Infection Control Practices Advisory Committee (HICPAC), in collaboration with the Society for Healthcare Epidemiology of America (SHEA), the

Association of Professionals in Infection Control and Epidemiology (APIC), and the Infectious Disease Society of America (IDSA).

More information about the hand hygiene campaign can be found by visiting www.cdc.gov/handhygiene.

CDC UPDATES "BOIL-WATER ADVISORIES AND THE DENTAL OFFICE" FACT SHEET

A boil-water advisory is a statement to the public advising persons to boil tap water before drinking it. When issued, the public should assume the water is unsafe to drink. Advisories can be issued either because of bacterial contamination or the occurrence of some event (e.g., water main break) compromising the distribution system. For an advisory to be issued, there must also be an indication of a health hazard.

The Centers for Disease Control and Prevention's (CDC) Division of Oral Health suggests that the following procedures may be appropriate for dental offices during boil-water advisories. These procedures should be observed in addition to specific instructions issued by state or local health departments during these advisories.

Actions to Take While a Boil-water Advisory is in Effect

- Water from the public water system should not be delivered to patients through the dental unit, ultrasonic scaler, or other dental equipment that uses the public water system until the boil-water advisory is canceled. This does not apply if the water source is isolated from the municipal water system (e.g., a separate water reservoir or other water treatment device that has been cleared for marketing by the Food and Drug Administration [FDA]).
- Water from the public water system should not be used for the dilution of any liquid germicides until the boil-water advisory is canceled.
- Patients should not use water from the public water system for rinsing but should use water from alternative sources (e.g., bottled or distilled water) or tap water that has been brought to a rolling boil for 1 minute and cooled prior to use.
- Dental personnel should not use water from the public water supply for handwashing. Instead, anti-microbial-containing products that do not require water for use, such as alcohol-based hand rubs, can be used until the boil-water notice is canceled. These products have been reviewed and cleared for marketing by the FDA.

When the Advisory is Cancelled

- First, incoming water lines from the public water system inside the dental office should be flushed (e.g., cleared of contaminated water). Flush all faucets in the dental office and waterlines to dental equipment that use the public water system. The local water utility should provide guidance for proper water line flushing to reduce residual microbial contamination in the lines. There is no consensus as to the optimal duration for flushing procedures following the cancellations of the boil-water advisory. A review of the literature found that the time period recommended for flushing water lines, following the cancellation of a boil-water advisory, varied anywhere from 1 to 5 minutes. The length of time may vary with the type and length of the plumbing system leading to the office.
- After the incoming public water system lines are flushed, dental unit water lines should be disinfected. The dental unit manufacturer should be consulted to determine the appropriate procedures to disinfect the dental unit water lines.

The complete Fact Sheet and a listing of additional resources on this topic can be found on the CDC Division of Oral Health Web site:
www.cdc.gov/OralHealth/infection_control/fact_sheet/boilwater.htm.

HEPATITIS B VACCINATION UPDATE

The year 2002 marked the 20th anniversary of the implementation in the U.S. of the world's first vaccine against hepatitis B virus (HBV). In addition to acute disease, persons infected with HBV are at risk for chronic HBV infection and severe morbidity and mortality from cirrhosis and hepatocellular carcinoma. Before 1982, an estimated 200,000-300,000 persons in the U.S. were infected annually with HBV, including approximately 20,000 children. No practical method of pre-exposure prophylaxis for HBV existed, and the only postexposure prophylaxis available was injection with hepatitis B immune globulin (HBIG).

Since 1982, substantial progress has been made toward eliminating HBV transmission in children and reducing the risk for HBV infection in adults. During 1982-2002, an estimated 40 million infants and children and 30 million adults received hepatitis B vaccine. Because of vaccination and changes in risk-reduction behaviors among at-risk populations in response to the HIV/AIDS epidemic, the number of persons infected in the U.S. declined to an estimated 79,000 in 2001. To eliminate HBV transmission, high vaccine-coverage rates must be sustained among infants, children, and adolescents, and programs to vaccinate adults at high risk for HBV infection must be expanded.

The risk of health-care personnel contracting HBV infection depends on how frequently they contact blood and blood products through percutaneous or permucosal routes of exposure. Any dental health-care personnel (DHCP) who perform tasks involving contact with blood, blood-contaminated body fluids, other body fluids, or sharps should be vaccinated. Vaccination should be completed before any contact with blood; it will protect both DHCP and patients from HBV infection. The Occupational Safety and Health Administration (OSHA) mandated HBV vaccination for at-risk health-care personnel as part of its Bloodborne Pathogens Standard in 1991.

In 1982, the levels of HBV infection among dentists and dental hygienists were high with 15% having serologic markers of a current or recent infection. Prevalence rates among oral surgeons were at least twice as high. If DHCP can acquire HBV infections occupationally, then there is a possibility that infected practitioners could pass the virus onto their patients. In fact, there have been ten documented incidences of dentists infecting their patients. The last occurred in 1984 and involved 26 patients and resulted in two fulminant cases.

Since the introduction of the hepatitis B vaccine, over 90 % of U.S. dentists have received the vaccine. Currently, booster injections are not recommended. However, DHCP should be tested for antibody to hepatitis B surface antigen (anti-HBs) one to two months after completing the 3-dose vaccine. Knowledge of antibody response aids in determining appropriate postexposure prophylaxis or need for revaccination.

Since its inception in 1982, the U.S. hepatitis B vaccination effort has faced several challenges. In the mid-1980s, concern was expressed about the possible risk for human immunodeficiency virus (HIV) transmission by the original plasma-derived vaccine; however, no transmission of any microbial agent was demonstrated. Plasma-derived hepatitis B vaccines are no longer used in the U.S., but their use continues safely in other countries. The vaccines currently available in the U.S. are produced by recombinant DNA technology.

Although concerns have been expressed over the past 20 years that certain chronic illnesses might be caused by hepatitis B vaccine, no evidence exists that the vaccine causes any of these diseases. The vaccine continues to be considered safe by the Food and Drug Administration, the Advisory Committee on Immunization Practices, the Institute of Medicine, and other national professional vaccination advisory groups.

References and Additional Resources:

CDC. Achievements in Public Health: Hepatitis B vaccine: 1982-2002. MMWR 2002;51:549-52. Available at www.cdc.gov/mmwr/preview/mmwrhtml/mm5125a3.htm. Accessed December 2002.

CDC. Epidemiology and Prevention of Vaccine-Preventable Diseases, 7th edition. Atlanta, Ga, 2002: 169- 89.

CDC. Hepatitis B virus: a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination. MMWR 1991;40(No.RR-13).

CDC. Immunization of health-care workers: recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC). MMWR 1997;46(No. RR-18).

CDC. Viral Hepatitis B. Available at www.cdc.gov/ncidod/diseases/hepatitis/b/fact.htm. Accessed December 2002.

Cottone JA, Puttaiah M. Viral hepatitis and hepatitis vaccine. In: Cottone JA, Terezhalmay GT, Molinari JA, eds. *Practical Infection Control in Dentistry*, 2nd ed. Baltimore: Williams & Wilkins, 1996:15-47.

Palenik CJ, Miller CH. Vaccination against hepatitis B, 1982-2002. Dental Asepsis Review 2002;23:1-2.

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). Occupational Exposure to Bloodborne Pathogens: Final Rule (29 CFR 1910.1030). *Federal Register* 1991;56:64004-64182.

FDA APPROVES NEW ANTIVIRAL AGENT FOR TREATMENT OF CHRONIC HEPATITIS B

Recently, the Food and Drug Administration (FDA) approved Hepsera (adefovir dipivoxil) tablets for the treatment of chronic hepatitis B in adults with evidence of active viral replication and either elevations in serum alanine aminotransferase (ALT) or aspartate aminotransferase (AST), or histologically active disease. Hepsera slows the progression of chronic hepatitis B by interfering with viral replication and causing DNA chain termination after its incorporation into viral DNA.

FDA based its approval of Hepsera on the results of two randomized, double-blind, placebo-controlled studies. At week 48 of the studies, 53% of patients receiving Hepsera in one study and 64% of patients in the other study showed significant improvement in the liver inflammation caused by HBV compared to 25% and 35% of patients receiving placebo. A statistically significant improvement in the degree of liver fibrosis (scarring) was observed in the patients who received Hepsera. Hepsera has been shown to be effective in treating patients with clinical evidence of HBV that is resistant to another approved antiviral therapy called lamivudine.

FDA APPROVES NEW RAPID HIV TEST KIT

On November 7, 2002, the Food and Drug Administration (FDA) approved a new rapid HIV diagnostic test kit for use by trained personnel. The OraQuick Rapid HIV-1 Antibody Test detects antibodies to HIV-1, the virus that causes AIDS, in the blood of an HIV-infected individual. The test will not detect HIV infection in people who are tested within about 3 months of exposure to the virus (3 months is the time it takes for detectable antibodies to appear in the blood in response to the HIV infection). It is a marked improvement over previous HIV tests, which required a vial of blood and a waiting time of several weeks for results. To perform the test, a fingerstick sample of blood is obtained from the individual being tested. The fingertip is cleaned with an alcohol pad and pricked with a lancet to generate a small droplet of blood. The blood is collected in a specimen loop that collects a precise amount of blood, and transferred to a vial where it is mixed with a developing solution. The test device is then inserted in the vial and the result can be read as little as 20 minutes later, with a reported 99.6% accuracy. As with all screening tests for HIV, a reactive OraQuick test result must be confirmed by another, more specific test.

The Centers for Disease Control and Prevention (CDC) estimates that one fourth of the approximately 950,000 HIV-infected people in the U.S. are not aware that they are infected. That means that more than 225,000 Americans don't know that they have this life-threatening viral infection that can be passed on to

others.

More information about the OraQuick Rapid HIV-1 Antibody Test can be found by visiting www.cdc.gov/hiv/testing.htm#methods.

THE CONTINUED THREAT OF TUBERCULOSIS

Tuberculosis first emerged as an infectious disease 15,000 to 35,000 years ago and is reappearing in many countries as a public health crisis. A staggering 1.9 million people around the globe die of tuberculosis each year and another 1.9 billion are infected with *Mycobacterium tuberculosis* and are at risk for active disease.

In the 20th century, the U.S. made impressive strides in tuberculosis control. From the early 1900s, when some areas began systematic reporting of death rates, tuberculosis rates steadily declined from approximately 200 deaths per 100,000 per year to less than 1 death per 100,000 in 1985. In 1953, a national surveillance system was established for reporting new cases of tuberculosis disease. The reported annual incidence was 53 cases per 100,000 population. From 1953 to 1984, tuberculosis disease incidence dropped steadily at an average rate of 5.8% per year to 9.4 cases per 100,000.

In 1985, the U.S. saw a reversal in this long-standing downward trend, and tuberculosis reemerged as a public health threat. From 1985 to 1992, not only did the number of cases increase from 22,201 to 26,673, but also large outbreaks were reported. Many of these were caused by multi-drug resistant *M. tuberculosis*. Several factors contributed to this increase, including the emergence of the HIV epidemic and large influxes of immigrants from countries in which tuberculosis was common. Perhaps, the major reason for the reemergence, however, was the end in 1972 of categorical federal funding for control activities which led to the deterioration of the public health infrastructure for tuberculosis control.

In response to the crisis of reemerging tuberculosis, grants were restored and federal funding increased. The investments have paid off, and after a peak in 1992, tuberculosis incidence in the United States has declined each year. However, the National Academy of Sciences Institute of Medicine warned against the "complacency and neglect" that come with declining numbers.

In 2001, the 15,989 tuberculosis cases reported to the CDC represented only a 2% decline from 2000, the smallest decline in 9 years. This may be the first sign of stagnation in control efforts. The proportion of cases in persons born outside the U.S. is growing. Efforts to reduce tuberculosis transmission in the United States have little effect on reducing risk for those infected elsewhere. Another risk, in the current climate of bioterrorism, is the possible intentional spread of multidrug-resistant *M. tuberculosis*. This risk requires new tools for detection and rapid and effective response. Currently strengthened surveillance systems closely monitor changes in disease epidemiology. If tuberculosis elimination progress in the United States slows, the CDC is prepared to respond quickly.

Additional resources on tuberculosis can be found at the CDC National Center for HIV, STD and TB Prevention, Division of Tuberculosis Elimination Web site: www.cdc.gov/nchstp/tb/faqs/qa.htm and in the November 2002 issue of Emerging Infectious Diseases at: www.cdc.gov/ncidod/EID/index.htm.

RECOMMENDATIONS AND REGULATIONS - WHO DOES WHAT IN INFECTION CONTROL?

In general, recommendations are made by individuals or groups who have no authority for enforcement. Regulations are made by groups (e.g., governmental groups, licensing boards) who do have the authority to enforce compliance.

Regulatory Agencies

Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Administration's purpose is to protect workers from physical, chemical, or infectious hazards in the workplace. It is important to understand that OSHA's sole intent is to protect the worker, not the patient. OSHA began to develop its standard for protection against occupational exposure to bloodborne pathogens in 1986 and published the final rule in 1991. The *Bloodborne Pathogens Standard* (29 CFR Part 1910. Occupational Exposure to Bloodborne Pathogens; Final Rule) became effective 6 March 1992. OSHA requires a copy of this document be available in every dental office and clinic. OSHA amended the *Bloodborne Pathogens Standard* in 2001 (29 CFR Part 1910. Occupational Exposure to Bloodborne Pathogens, Needlestick and Other Sharps Injuries; Final Rule; effective 18 April 2001) adding new requirements for employers, including additions to their exposure control plan. Also, it specifies in greater detail about using engineering controls, such as safer medical devices to reduce or eliminate worker exposure.

Food and Drug Administration (FDA)

The Food and Drug Administration is part of the U.S. Department of Health and Human Services. The purpose of the FDA is to assure the safety and effectiveness of drugs and medical devices by requiring "good manufacturing practices". The FDA also reviews labeling of the devices to ensure that manufacturers' claims can be supported. Relative to infection control, the Center for Devices and Radiological Health (CDRH) within the FDA regulates the manufacturing and labeling of medical devices (e.g., sterilizers, biologic and chemical indicators, ultrasonic cleaners and cleaning solutions, liquid sterilants, gloves, masks, surgical gowns, protective eyewear, handpieces, dental instruments, dental chairs, dental unit lights) and antimicrobial handwashing agents and mouth rinses. All medical devices to be sold in the U.S. must first be cleared by the FDA. To do so, the manufacturer must submit a 510K application (premarket notification) describing the device and the manufacturing facilities. The manufacturer must also present results of studies conducted to support any claims of effectiveness and safety made for the device. The FDA does not control the actual use of the medical device but indicates that any use contrary to instructions on the device transfers any liability for problems that develop from the manufacturer to the user.

Environmental Protection Agency (EPA)

The Environmental Protection Agency has two main divisions that directly impact infection control. The Office of Solid Waste is involved in regulating medical waste after it leaves the dental office. The Office of Pesticide Programs requires manufacturers to submit information on the safety and effectiveness of disinfectants to the EPA for review to ensure that safety and the antimicrobial claims stated for the products are supported with scientific evidence. If the claims meet the criteria, the disinfectant product receives an EPA registration number that must appear on the product label.

State and Local Regulations

Some state and local regulations exist in relation to medical waste management, instrument sterilization, and sterilizer spore testing for dentistry. Twenty-two states have their own Division of Occupational Safety and Health Administration in their Departments of Labor. These states have standards that are at least as stringent as the federal OSHA standards.

Recommending Agencies

Centers for Disease Control and Prevention (CDC)

The Centers for Disease Control and Prevention is the most important recommending agency to those involved in the practice of infection control. Most dental infection control procedures practiced in dentistry today are based on the 1993 CDC Recommended Infection-Control Practices for Dentistry. CDC does not

have the authority to make laws but many of the local, state, and federal agencies use the CDC recommendations to formulate laws. Other CDC centers and agencies impacting infection control practices include:

- National Center for Infectious Disease, including the Division of Healthcare Quality Promotion (DHQP) and the Healthcare Infection Control Practices Advisory Committee (HICPAC)
- National Institute for Occupational Safety and Health (NIOSH)
- National Center for HIV, STD and TB Prevention
- Epidemiology Program Office

American Dental Association (ADA)

The American Dental Association makes infection control recommendations through its Councils on Scientific Affairs and Dental Practice. The most recent recommendations were published in August 1996.

Organization for Safety and Asepsis Procedures (OSAP)

OSAP, a non-profit organization, is a unique group of dental practitioners, allied health-care workers, industry representatives, and other interested persons with a collective mission to promote infection control and related science-based health and safety policies and practices.

Association for Advancement of Medical Instrumentation (AAMI)

The Association for Advancement of Medical Instrumentation is a voluntary organization composed of manufacturers, distributors, researchers, regulators, and users of medical equipment. One component of this organization is devoted to developing sterilization standards, including recommended practices on how to properly use sterilizers and technical documents on the equipment.

Reference:

Miller CH, Palenik C J. Infection control rationale and regulations. In: Miller CH, Palenik C J, eds. *Infection Control and Management of Hazardous Materials for the Dental Team*, 2nd ed. St. Louis: Mosby, 1998:83-105.

INFECTION CONTROL Q & A

Year 2000 USAF Dental Infection Control Guidelines

Question: Is DIS planning an update for the Year 2000 USAF Dental Infection Control Guidelines?

Answer: The Year 2000 USAF Dental Infection Control Guidelines are the latest published recommendations. The InControl newsletter is published twice a year with the intent of providing infection control and safety updates and items of interest. Also, information is posted on the DIS "What's Hot" section of our web site. The Centers for Disease Control and Prevention (CDC) is updating its 1993 dental infection control recommendations, with plans to publish them in 2003. Since our dental infection control recommendations are based on CDC recommendations, DIS will not update the Year 2000 USAF Dental Infection Control Guidelines until after publication of the updated CDC dental infection control guidelines.

Preventing and Treating Dry Skin

Question: Are there recommendations for preventing and treating dry skin that is common during the winter months?

Answer: With the cooler temperatures, many of us are experiencing dry skin and subsequent dermatitis most likely resulting from frequent handwashing and glove use. Dental health-care personnel (DHCP) have the potential to wash their hands over 30 times during a typical workday. This can contribute to irritant contact dermatitis, which usually appears as reddened, dry, or chapped skin. Factors such as cold

weather and low humidity may also contribute to the problem. Prevention is the key, because dry, irritated skin discourages proper hand hygiene and may harbor potentially pathogenic organisms. Also, if the problem is allowed to become chronic, the irritation may progress to hypersensitivity.

Lotions are recommended to ease the dryness resulting from frequent handwashing and, more recently, to prevent dermatitis resulting from glove use. Petroleum-based lotion formulations, however, can weaken latex gloves and cause increased permeability. For that reason, lotions containing petroleum or other oil emollients may affect the integrity of gloves and should not be used. At the time of product selection, information should be obtained from the manufacturer regarding interaction between gloves and lotions.

DHCP with open sores or weeping dermatitis must refrain from direct patient contact and handling of patient care equipment until the condition has resolved. Evaluation by a qualified health-care professional is necessary if DHCP experience repeated or unresolved hand irritation.

Some preventive measures include:

- Washing with cool or tepid water
- Wetting hands thoroughly before applying the handwashing agent
- Thoroughly rinsing off all handwashing agents with cool water
- Gently drying hands (vs. rubbing) with disposable soft materials
- Drying hands completely before donning gloves
- Wearing protective gloves when cleaning or handling chemicals
- Using water-based skin care products

References and Additional Resources:

CDC. Guideline for hand hygiene in health-care settings: recommendations of the healthcare infection control practices advisory committee and the HICPAC/SHEA/APIC/IDSA hand hygiene task force. MMWR 2002;51 (No. RR-16): 1- 45.

Larson EL, 1992, 1993, and 1994 Association for Professionals in Infection Control and Epidemiology Guidelines Committee. APIC guideline for hand washing and hand antisepsis in health-care settings. Am J Infect Control 1995;23:251- 69.

Molinari JA, Rosen S, Runnells RR. *Chemical sterilization, disinfection, and antisepsis*. In: Cottone JA, Terezhalmay GT, Molinari JA, eds. *Practical infection control in dentistry*, 2nd ed. Baltimore: Williams & Wilkins, 1996: 161-75.

Disinfecting High-tech Equipment in the Dental Setting

Question: Are there special considerations for disinfecting computer equipment in the dental operator?

Answer: The introduction of high-tech equipment in dentistry (e.g., digital x-ray sensors, cameras, and computers) presents unique infection control challenges. The best results with the least damage to the equipment are obtained by following manufacturer's directions. Avoiding contamination is important because many items cannot be properly cleaned and disinfected or sterilized. Before touching any office equipment, ensure your hands are clean, and if wearing gloves select a powder-free brand. A computer keyboard is an excellent example of difficult, if not impossible, equipment to clean. It should be covered with a plastic barrier when contamination is likely, and changed between patients. If a reusable form-fitted barrier is used, it should be cleaned and disinfected between patients.

Some questions to consider prior to purchasing expensive high-tech equipment include:

- Can it be adequately decontaminated?
- Can it be cleaned with soap and water?
- Can it be heat sterilized?

- Will barrier covers interfere with its function?
- Do you have to disassemble it before cleaning?
- Is there more than one approach to decontamination?
- Will the approach you choose affect the life of the equipment?

Work Restrictions for Dental Health-Care Personnel with Infectious Diseases

Question: Does the USAF Dental Service have information outlining procedures to follow when dental health-care personnel are diagnosed with infectious disease?

Answer: No, there is no definitive information from headquarters defining work restrictions for infected health-care personnel. It is the responsibility of the local health-care facility to implement measures to prevent further transmission of infection. Decisions on work restrictions are based on the mode of transmission and the epidemiology of the disease. This can mean exclusion of personnel from work or patient contact until the disease resolves, or in some cases seeking counsel from an expert review panel to determine work restrictions.

A summary of suggested work restrictions for health-care personnel exposed to or infected with infectious diseases of importance in health-care settings (in the absence of state or local regulations) appears in:

Bolyard EA, Tablan OC, Williams WW, Pearson ML, Shapiro CN, Deitchman SD and The Hospital Infection Control Practices Advisory Committee. Guideline for infection control in health care personnel, 1998. *Am Journal of Infection Control* 1998;26:299-301. Available at www.cdc.gov/ncidod/hip/guide/infectcont98.htm. Accessed December 2002.

For some infectious diseases, it is easier to determine appropriate work restrictions than others (i.e., individuals with active varicella [chickenpox] should be **excluded from duty**¹ until all lesions dry and crust). For individuals diagnosed with bloodborne virus diseases (e.g., hepatitis B virus [HBV], human immunodeficiency virus [HIV]), several issues need to be addressed. The CDC Guideline for Infection Control in Health Care Personnel recommends that personnel with HIV or HBV not perform exposure-prone² **invasive procedures**³ until **counsel from an expert review panel** has been sought.

The expert review panel should consist of individuals knowledgeable on the most current recommendations for infected health-care personnel and infectious diseases. The decision is made at the local level as to panel membership (e.g., credentials committee, medical evaluation board).

The expert review panel determines, on a case-by-case basis, what practice restrictions should be imposed, taking into account specific procedures the clinician performs, as well as skill and technique of the worker. Also, **state regulations** (i.e., the individuals state of licensure and the state where the individual is practicing) must be taken into account. Emphasis should be on adherence to infection control measures (e.g., standard-universal precautions, work practice controls, engineering controls [e.g., safer medical devices]) to prevent exposure of patients or providers to blood, and not on prohibiting infected health-care personnel from participating in patient-care activities solely on the basis of their bloodborne pathogen infection.

Selected References and Additional Resources:

American Dental Association: *Resource Manual for Support of Dentists with HBV, HIV, TB and Other Infectious Diseases*. Available at www.ada.org/prof/prac/issues/pubs/hiv/hiv-man/intro.html. Accessed December 2002.

Bolyard EA, Tablan OC, Williams WW, Pearson ML, Shapiro CN, Deitchman SD and The Hospital Infection Control Practices Advisory Committee. Guideline for infection control in health care personnel, 1998. *Am Journal of Infection Control* 1998;26:289-354. Available at www.cdc.gov/ncidod/hip/guide/infectcont98.htm. Accessed December 2002.

CDC. Recommendation for prevention of HIV transmission in health-care settings. MMWR 1987;36 (suppl. no. 2S):6S-7S. Available at www.cdc.gov/mmwr/preview/mmwrhtml/00023587.htm. Accessed December 2002.

CDC. Recommendations for preventing transmission of HIV and HBV to patients during exposure-prone invasive procedures. MMWR 1991;40(RR-8):1-9. Available at www.cdc.gov/mmwr/preview/mmwrhtml/00014845.htm. Accessed December 2002.

Chiarello LA, Cardo DM, Panililio A, Alter, MJ, Gerberding JL. Risks and prevention of bloodborne virus transmission from infected healthcare providers. *Seminars in Infection Control* 2001;1:61-72.

Footnotes

The following Centers for Disease Control and Prevention (CDC) definitions may be helpful in the decision-making process.

¹**Exclude from duty** exclusion from the health-care facility and from health-care activities outside the facility. Individuals who are excluded from duty should avoid contact with susceptible persons both in the facility and in the community.

²**Exposure-prone procedure** characteristics of these procedures include digital palpation of a needle tip in a body cavity or the simultaneous presence of a clinician's fingers and a needle or other sharp object in a poorly visualized or highly confined anatomic site.

³**Invasive procedure** "surgical entry into tissues, cavities, or organs or repair of major traumatic injuries" associated with any of the following: "1) an operating or delivery room, emergency department, or outpatient setting, including both physicians' and dentists' offices; 2) cardiac catheterization and angiographic procedures; 3) a vaginal or cesarean delivery or other invasive obstetric procedure during which bleeding may occur; or 4) the manipulation, cutting, or removal of any oral or perioral tissues, including tooth structure, during which bleeding occurs or the potential for bleeding exists."

Attachment 1
Selected Online Infection Control Resources
(Web sites accessed December 2002)

Associations and Organizations

- American Dental Association (ADA) <http://www.ada.org>
ADA Dental Infection Control Issues: <http://www.ada.org/prof/prac/issues/topics/iconcontrol.html>
- American Society for Microbiology (ASM) <http://www.asmtusa.org/>
- Association for Professionals in Infection Control and Epidemiology <http://www.apic.org>
- Association for the Advancement of Medical Instrumentation (AAMI) <http://www.aami.org/>
- Hepatitis Foundation International <http://www.hepfi.org/>
- Hospital Infection Society (HIS United Kingdom) <http://www.his.org.uk/>
- Infectious Diseases Society of America (IDSA) <http://www.idsociety.org/>
- International Federation of Infection Control (IFIC) <http://www.ific.narod.ru/>
- International Health-Care Worker Safety Center Univ of VA <http://www.med.virginia.edu/medcntr/centers/epinet/>
- Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) <http://www.jcaho.org/>
- National Foundation for Infectious Diseases (NFID) <http://www.nfid.org/>
- National Tuberculosis Center <http://www.umdj.edu/ntbcweb/tbsplash.html>
- Organization for Safety and Asepsis Procedures (OSAP) <http://www.osap.org/>
- Society for Healthcare Epidemiology of America (SHEA) <http://www.shea-online.org/>
- World Health Organization (WHO) <http://www.who.int/en/>

Government and Regulatory Agencies

- Agency for Health Care Policy and Research <http://www.ahrp.gov/>
- Centers for Disease Control and Prevention (CDC) <http://www.cdc.gov/>
Division of Healthcare Quality Promotion (Hospital Infections Program) <http://www.cdc.gov/ncidod/hip/default.htm>
Guidelines and Recommendations <http://www.cdc.gov/ncidod/hip/Guide/guide.htm>
Morbidity and Mortality Weekly Report <http://www.cdc.gov/mmwr/>
National Nosocomial Infection Surveillance (NNIS) <http://www.cdc.gov/ncidod/hip/SURVEILL/NNIS.HTM>
Emerging Infectious Diseases (EID) <http://www.cdc.gov/ncidod/EID/>
National Immunization Program <http://www.cdc.gov/nip/>
State Health Departments On-Line <http://www.cdc.gov/search2.htm>
National Institute for Occupational Safety and Health (NIOSH) <http://www.cdc.gov/niosh/homepage.html>
NIOSH: Bloodborne Infectious Diseases <http://www.cdc.gov/niosh/topics/bbp/>
NIOSH: Latex Allergies <http://www.cdc.gov/niosh/latexpg.html>
Divisions of HIV/AIDS Prevention <http://www.cdc.gov/hiv/dhap.htm>
Tuberculosis Elimination <http://www.cdc.gov/nchstp/tb/default.htm>
National Center for Chronic Disease Prevention and Health Promotion Oral Health Resources: Dental Infection Control http://www.cdc.gov/OralHealth/infection_control/index.htm
- Environmental Protection Agency <http://www.epa.gov>
Lists A through F are EPA's registered antimicrobial products effective against tubercle bacteria, human HIV-1 virus, or Hepatitis B virus: <http://www.epa.gov/oppad001/chemregindex.htm>
- Food and Drug Administration <http://www.fda.gov/>
Center for Devices and Radiological Health <http://www.fda.gov/cdrh/index.html>
- National Institutes of Health (NIH) <http://www.nih.gov/>
- National Institute of Allergy and Infectious Diseases <http://www.niaid.nih.gov/default.htm>
- National Library of Medicine (NLM) <http://www.nlm.nih.gov/>
PubMed <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>
- Occupational Safety and Health Administration (OSHA) <http://www.osha.gov/>
Needlestick Prevention <http://www.osha.gov/SLTC/needlestick/index.html>
Dental Safety and Health Topics: <http://www.osha.gov/SLTC/dentistry/index.html>
- U.S. Government Printing <http://www.access.gpo.gov/>

Other

- The World-Wide Web Virtual Library: Epidemiology <http://chanane.ucsf.edu/epidem/epidem.html>
- HIV Dent <http://www.hivdent.org>